

Emerging Scientific Issues for EWA

Musings by the Science Advisors

Many positive developments!

- Institutional
- Scientific
- Procedural

Quantifying benefits of EWA I

- Peace in our time
 - Not a goal of EWA (L.R.Brown, pers. comm.)
- Ecosystem benefits
 - None demonstrated or hypothesized
 - Let's drop this one!

Quantifying benefits of EWA II

- **Salmon:**
 - Better chance of quantifying
 - Winter run: small
 - Spring run: harder to quantify
 - Any effects likely to be additive
- **Smelt:**
 - Could be substantial if applied strategically
 - But: little evidence of a persistent effect
 - Effects may not be additive

Information gaps

- Context for analysis of population-level effects
- Monitoring program: string and duct tape
- Formal evaluation of key programs
- Lack of statistical rigor
- Information on steelhead

Science needed to fill gaps


What are the elements of a scientific approach?

- Develop theories about how things work
 - Testable hypotheses
 - Quantitative predictions
 - Need for parameter values
- Gather data to test hypotheses/answer questions
 - Experiment, monitoring data, model runs,...
 - Formal analysis
- Write up the results in a formal paper
- Obtain peer review
 - Self-correcting aspect of science
- Publish the results

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At this point
it is just
gossip

Science needed to fill gaps II

- Consistent, persistent monitoring program
- Scientific SWAT team?
- Bring results into the scientific arena
 - Write them up
 - Get them reviewed and published
- Keep working on smelt!

Science needed to fill gaps III

- Can we find out more about steelhead?
- Sort out spring run life history
- Focus on population-level effects
 - Assume effects are additive in terms of mortality
 - Attribute effects to causes